



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/811,773

03/29/2004

Minoru Otani

1324.70181

9505

7590

05/25/2006

Patrick G. Burns, Esq.
GREER, BURNS & CRAIN, LTD.
Suite 2500
300 South Wacker Drive
Chicago, IL 60606

EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/811,773

Applicant(s)

OTANI ET AL.

Examiner

Tarifur R. Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2871

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admission of Prior Art (AAPA) in view of Terashita et al.

(U.S. Patent No. 6,057,038, hereinafter "Terashita").

3. As to claim 1, AAPA discloses a method of manufacturing a liquid crystal display (LCD) panel comprising the step of coating a resin film (3) on one pair of substrates (2) facing each other (fig. 3a; p. 4, lines 5-7), forming a plurality of pillar spacers (5) by patterning the resin film (fig. 3b; p. 4, lines 7-13), optically cleaning the surface the substrate where the pillar spacers have been formed (p. 4, lines 14-21), and forming an alignment film (7) on the optically cleaned substrate.

As to the limitations of "for distributing liquid crystal between the pair of substrates" and "so as to avoid reduction in thickness of said pillar spacers", these are deemed to be inherent or at least obvious. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

However, AAPA fails to specifically disclose that during the optical cleaning, a light source having an emission peak in wavelength range of 180 nm or less or 260 nm or more and not have an emission peak in a wavelength range from 180 to 260 nm is used.

Terashita discloses a method of manufacturing an LCD where in the step of optically cleaning, the light source has an emission peak in wavelength range

Art Unit: 2871

of 180 nm or less or 260 nm or more and not have an emission peak in a wavelength range from 180 to 260 nm is used (col. 10, lines 33-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a light source used during the step of optically cleaning of AAPA having an emission peak in wavelength range of 180 nm or less or 260 nm or more and not having an emission peak in a wavelength range from 180 to 260 nm is used since one would be motivated to increase the number of transitions to the excited state (referring to the oxygen atoms) and to thereby improve the quantum efficiency (col. 10, lines 25-30). Ultimately, optical cleaning in this wavelength range improves thoroughness in cleaning, smoothness, and cleaning speed (col. 11, lines 15-20).

4. As to claim 2, AAPA discloses the method of manufacturing the LCD as recited above, however, AAPA fails to specifically disclose that the light source is an excimer lamp.

Terashita discloses a method of manufacturing an LCD where an excimer lamp (col. 10, lines 33-37) is used and preferred over the standard mercury lamp for the step of optically cleaning (col. 11, lines 21-22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the light source of AAPA to be an excimer lamp rather than a mercury lamp since one would be motivated to provide a cleaning speed that is ten times faster (col. 11, lines 23-24), a homogenous light with wavelength of 172nm (which is in the range of vacuum UV light) that has the benefits described above (col. 10, lines 25-30; col. 11, lines 15-20) as well as

Art Unit: 2871

being safe for humans (col. 11, lines 25-30), and the capability of being instantly turned on and off, reducing power consumption to one-third that of the mercury lamp (col. 11, lines 31-33).

Response to Amendment

5. It is acknowledged and appreciated that applicant has amended the abstract and the drawings.

Response to Arguments

6. Applicant's arguments filed on March 20, 2006 have been fully considered but they are not persuasive.

7. In response to applicant's argument that Terashita relates specifically to a method for forming the thin film transistors (TFT) of a liquid crystal display element which is unrelated to the liquid crystal holding portion of the liquid crystal panel and thus one of ordinary skill in the art would not have looked into Terashita to avoid reduction in thickness of the pillar spacers, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

It is true that Terashita uses the excimer lamp to clean the surfaces of the gate insulating film and the transparent conductive films to improve adhesions between them. However, as explained above Terashita also discloses that optical cleaning in this wavelength range improves thoroughness in cleaning, smoothness, and cleaning speed (col. 11, lines 15-20). Therefore, knowing the

Art Unit: 2871

advantages of using optical cleaning in the wavelength range disclosed by Terashita, one of ordinary skill in the art would definitely look into the reference to use such optical cleaning in the optical cleaning process of the AAPA, which will eventually avoid reduction in thickness of the pillar spacers.

Accordingly, the rejection is still proper and thus maintained.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

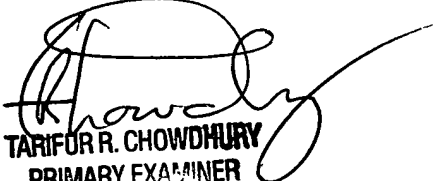
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R. Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

Art Unit: 2871

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TRC
May 24, 2006



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER